

REMARKS

Claims 4-12 and 15-19 are presented for further examination. Claim 4 has been amended.

In the Office Action mailed February 8, 2006, the Examiner rejected claims 4 and 6 under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 6,226,337 ("Klank '337") in view of U.S. Patent No. 6,330,293 ("Klank '293"). Claim 5 was rejected as obvious over Klank '337 and Klank '293 and further in view of U.S. Patent No. 5,506,836 ("Ikeda et al."). Claims 7-12 and 15-19 were allowed.

Applicant respectfully disagrees with the bases for the rejections and requests reconsideration and further examination of the claims.

In remarks accompanying the rejection of claims 4 and 6, the Examiner stated that Klank '337 does not disclose means for correcting window shifting with respect to an optimal position. For this missing feature, the Examiner relies upon Klank '293, stating it would be obvious to modify Klank '337 in view of Klank '293 in order to incorporate means for correcting window shifting with respect to an optimal position in order to tune the received multicarrier digital signals or to check the system conformity of such digital signals.

In the Klank '293 reference, which is directed to a method for receiving multicarrier digital signals, Klank et al. describe the position of a sampling window FFTWIN and of the sampling clock being corrected in an FTS by means of a basic oscillator VCX0. In other words, Klank '293 describe window shifting using a basic oscillator, and the position of the FFT window is adjusted by action of the basic oscillator VCX0. This particular structure leads to a continuous correction, and significant shifts between the start of two windows cannot exist because the oscillator VCX0 can be adjusted at best by only a few ppm, which means a shift of less than a sample between two successive windows.

In contrast, the present claimed invention can perform a window shift between two successive FFT windows of several tens or hundreds of samples as discussed on pages 7 and 9 of the substitute specification. Ideally, the shift should be no greater than the duration of the guard interval because a shift greater than the guard interval duration would be useless. In addition, Klank '293 fails to mention correction of the window shift using pilots. In the present

invention, the window shift is corrected in the frequency domain using phase rotations of each pilot, proportional to the shift and to the frequency of the pilot.

Turning to the claims, claim 4 is directed to a COFDM demodulator that comprises a fast Fourier transform circuit for analyzing a received signal in a window corresponding to one symbol, each symbol carrying several phase and amplitude modulated carriers, some of which shifted in frequency in a predetermined way from one symbol to the next one form pilots, each symbol having a guard interval. Claim 4 further recites a bidimensional filter and means for correcting a temporal window shifting with respect to an optimal position, in which two successive windows can be temporally shifted up to the guard interval duration, and means for correcting each distortion according to temporal window shifting corrections performed respectively for the symbol associated with the distortion and for the symbols associated with the anchors used to interpolate the distortion.

As recited above, claim 4 has been amended to indicate that each symbol has a guard interval and that two successive windows can be temporally shifted up to the guard interval duration. Klank '293, on the other hand, teaches the use of a basic oscillator that performs a continuous correction. This means that significant shifts between the start of two windows cannot exist because the basic oscillator can only be adjusted by a few ppm at best. This means a shift of less than a sample will occur between two successive windows. Clearly, the combination of the two Klank references falls short of the present claimed invention because the Klank '293 reference, upon which the Examiner relies for temporal window shifting, utilizes a basic oscillator that performs a continuous correction that at best can only be adjusted by a few ppm. Claim 4 recites two successive windows temporally shifted up to the guard interval duration.

In view of the foregoing, applicant respectfully submits that claim 4 is clearly allowable over the references cited and applied by the Examiner. Claim 6 is also allowable for the features recited therein as well as for the reasons why claim 4 is allowable.

Claim 5, which depends from claim 4, recites means for correcting the window shifting comprising a phase-locked loop synchronized on a correlation signal obtained by a correlation product between the received signal, and this same signal delayed by one symbol, each symbol being preceded by a guard interval corresponding to a copy of the end of the

symbol. Applicant respectfully submits that claim 5 is allowable for these features as well as for the reasons why claim 4 is allowable.

In view of the foregoing, applicant submits that all of the claims in this application are now in condition for allowance. Consequently, early and favorable action allowing these claims and passing this case to issuance is respectfully solicited.

Applicant notes that the Examiner has not acknowledged receipt of the priority documents. This application is a National Stage conversion of PCT/FR00/00477 and the priority documents would have been provided to the U.S. Patent and Trademark Office by the International Bureau. Applicant respectfully requests acknowledgment of receipt of all priority documents.

The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

Respectfully submitted,

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